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ABSTRACT

This Delphi analysis of the "Instructionally Effective School" (IES) was designed to measure the current state of the art and science of school-based teaching and learning for poor children, and to describe the policy implications of the developmental level for school people, districts, states, and the federal government. Teams of experts in each of the component areas of the IES circulated inventories to the panel membership, who recorded their opinions about each proposition, the confidence level of their estimates, and their basis for judgment. These data were then recirculated, so that panel members could refine their judgments and comment on the developing consensus. This methodology is described in detail, and results of the analysis are reported for the following six contributing factors: (1) teacher characteristics and behavior; (2) administrator characteristics and behavior; (3) student body composition; (4) school learning climate; (5) pupil evaluation procedures; and (6) curriculum materials. Policy implications are then summarized for each of these factor areas. The study concludes that substantial improvements have occurred across the board in the teaching of needy children. (TE)

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A DELPHI ANALYSIS OF THE INSTRUCTIONALLY EFFECTIVE SCHOOL

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This Delphi analysis of the "Instructionally Effective School" (IES) was designed first to measure the current state of the art and science of school-based teaching and learning for poor children. Second, it was designed to describe the policy implications of the developmental level for school people, districts, states, and the federal government. After an initial round that defined and delimited the problem, teams of experts in each of the component areas of the IES circulated propositional inventories to the panel membership. Members recorded their opinions about each proposition, the confidence level of their estimates, and where possible the basis on which those judgments had been reached. These data were then re-circulated so that panel members had the opportunity to refine their judgments and comment on the developing consensus and dissensus.

The members are listed below. They were selected because of their expertise in each of the areas and because they were at least favorably disposed to the possibility that instructionally effective schools, according to our definition, did exist. The selection criteria for members are appropriate given the purpose of measuring positive aspects of school practice. This analysis would not have been served by documenting again the widespread belief that schooling cannot work for poor children.

The responsibility for the interpretation in this summary should rest with the authors. The quality of this project is attributable to the hard work and prodigious cooperation of the panel, and they all express their own judgments in the team reports included here. While Judy Lawrence and I did what we could to facilitate the work of the teams with drafting and tentative analysis, our judgments were not part of the panel's opinions. But our opinions are expressed in this summary paper.

Finally, we need to note what should be obvious. Many of the areas and issues discussed in this summary are complicated, some are subtle, many are inadequately established empirically and quite contentious. The analysis done by each of the teams reports expert opinion on these matters. The panel was seldom unanimous and disagreement undoubtedly extends to the current summary, interpretation, and recommendations.

This reports the summary and recommendations, prepared by the principal investigator, of a project sponsored by the School Finance Project of the National Institute of Education. The views expressed here are the author's sole responsibility.

EA 017 105

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Table 1: Members by Panel and Institution

Team Leader	Team Member
Teachers Characteristics and Behavior	
David Berliner University of Arizona	Leonard Cahen Arizona State University
Administrator Characteristics and Behavior	
David L. Clark Indiana University	Linda Lotto Ohio State University
Student Background and Student Body Composition Variables	
R. Gary Bridge Teachers College, Columbia University	
School Learning Climate	
Lawrence Lezotte Michigan State University	
Pupil Evaluation Procedures	
Donna Wanous Michigan State University	Joy Frechtling Montgomery County Maryland Public Schools
Curriculum	
Ian Westbury University of Illinois at Urbana-Champaign	Lynn Stoll Ontario Institute for the Study of Education
Policy	
Ron Edmonds Michigan State University	Fred Burke Former Commissioner, New Jersey State Department of Education

The Definition Round

The IES should be defined as a school that can increase academic achievement for its students who are from low income backgrounds. It is unfeasible to expect that a school, by itself, can completely erase the relationship between low achievement and low income backgrounds but it is not unreasonable to expect some improvement for these children. How much is enough is a question best answered close to the school. Goal setting should include parents, communities, school boards, and school officials and it should be informed by a sense of the new possibilities for public schooling.

Second, "effectiveness" should be measured by achievement on norm-referenced standardized tests. The panel clearly rejected career or vocational fates of school graduates as a measure of schooling success (for these purposes) and equally clearly rejected a school's reputation or the satisfaction of adults (teachers and/or parents) as a measure of instructional effectiveness. Test scores accurately measure literacy and

numeracy especially at the basic level; while we should all aspire to additional achievements for all children, those things are built on a foundation of basic skills.

Can achievement be changed by manipulating (a) within school variables (b) within existing resources? There is evidence that that is being done: the panel concluded that working on alterable variables within existing resources was a feasible and correct agenda for public schools. This Delphi inquiry was begun to test the notion that there were things within reach of public policy makers which could be changed to help kids do better in school. The proposition has been supported in the analysis although not with the clarity and weight that had been hoped and that may be reached in the future. With respect to money we do not doubt that more support for schooling for poor children would help and that a lot more money would help a lot. But the prospect for that is dim at least in part because people believe that schools are not able to help poor children. Doing better with what we have should contribute to more adequate support. And failing to improve alterable variables within current resources has the unfortunate effect of holding another generation of poor children hostage to a more generous public. Thus, schools should begin moving toward instructional effectiveness because in both the short range and the long range, everyone will benefit.

The panel was nearly unanimous in wanting to augment school effects with help from non-school resources, especially parents. While that is desirable, we believe that the essence of the public policy problem lies with children who do not and will not have those resources. Current trends indicate that within a few years, half the children of the United States will have experienced broken homes yet few principals have the audacity to tell their PTA's that there is not much the school can do to help the children of divorce learn in school. School people ought similarly to accept the challenge of effective education for the children of poverty.

The Delphi was organized around a five-part typology which is becoming commonplace (administrative factors, teacher variables, pupil evaluation, etc.). It is important to note that the framework was both adequate and has become commonplace. We experienced less overlap than expected and with one exception* we found no major area that was inadequately configured. The typology that was used by this analysis is the same as that used by many systems that have tried to bring the IES into practice. That encouraging concurrence between scientific and practical paradigms is further strengthened by the large number of major

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*The composition of a school's student body can be changed by school policies and those changes have an effect on achievement. "Student body composition" had originally been subsumed under "school climate" but was eventually separated.

studies which, independently, have found the same set of variables useful in studying the IES. Even discounting for faddism, that sort of convergence is an important signal in the maturation of a technology. The small number of variables coincides with what school leaders need from the scholarly community---a set of things terse enough to fit on a flag.

As part of the definitional round, the panel was asked to estimate how much each of the factors contributed to instructional effectiveness. Not surprisingly, teacher variables led the way but the last place ranking of specific curriculum materials came as a surprise.

Table 2

Panelists Final Estimates of Percent Contributed by Each of Six Factors to the Instructionally Effective School Summarized by Factors

FACTOR	MEAN	MEDIAN	SD	TOTAL POINTS
1) Teacher characteristics and behavior	25	25	7.2	245
2) Administrator characteristics and behavior	24	25	14.5	243
3) Student body composition*	20	15	19.6	196
4) School learning climate	13	13	6.6	125
5) Pupil evaluation procedures	11	9	8.4	106
6) Curriculum materials	8	10	5.4	75

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*N. B. Numbers 3 and 4 were separated for most but not all of the analysis. Most of the IES literature stresses educating all children who come to the public school regardless of family background. But those features can be varied by some policy makers, e.g., school boards drawing attendance lines and where we needed attention to that sort of phenomenon we moved from five factors to six.

Virtually all of the IES literature puts the role of the school principal first. The panel placed administrator contributions second but when asked which factor was most reasonable as a focus for "government action (e.g., legislation, mandated development, use as a criterion of eligibility for state and federal funding...)", administrators were restored to the top of the list. Principals are more politically vulnerable than are

the heavily-unionized faculties of American schools, and principals are officially charged with school leadership functions; both characteristics make it sensible to concentrate public policy on school administrators, at least initially.

Interaction among the variables may be critical to practice. If for example, one puts in place a finely-grained pupil achievement measurement system, and those data are used inappropriately for teacher personnel evaluations, teachers may withhold their support for a school-wide improvement effort. Must improvement be school-wide? Are teachers or schools a better focus for public policy? These important questions have not been clarified by this analysis for the very good reason that the data base that we might have synthesized about interaction and substitutability among the factors as they have been experienced in the field simply does not yet exist.

Neither is very much known about the instructionally effective secondary school, at least in comparison to what is known about IES elementary schools.* Efforts at school improvement are best concentrated in the early grades because younger children have less of a deficit to overcome and because success there reduces the necessity of costly efforts at remediation later. It is fortuitous that we know more about the more important policy level, elementary schooling.

The definitional round and its iterations (i.e., circulating early results with requests for clarification and comment) did for the panel about what one would hope for in any school system contemplating committing itself to more instructionally effective schooling. The panel agreed that it was realistic to inquire in more detail about schools that were helping poor children achieve better despite their poverty. The panel might have but did not endorse the conventional wisdom about the futility of school effects. Second, the panel agreed on a limited set of factors, those factors stayed stable and they illuminated pivotal questions of schooling practice. Our interpretations and conclusions about each of those areas is discussed next.

Teacher Characteristics and Behavior

The results of this part of the analysis support the idea that more is known, more reliably, about more detailed kinds of behaviors with respect to effective teaching than any other area of the IES. Everyone agrees about the importance of administrative leadership but compared to the specificity of knowledge about good classroom practice, leadership prescriptions

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*It is possible, even likely, that many of our findings would be quite different for the secondary school, e.g., the place of the curriculum. Unfortunately, secondary schools have not had the sort of results-oriented scrutiny that elementary schools have had and thus, a Delphi analysis would be premature.

are counsels of global perfection.

As Berliner-Cahen point out in their report, "Empirical evidence, common sense, and rater judgments all support [the importance of time usage] in the classroom." That means a heavy allocation of time-on-task to direct instruction in reading and math. One effect of that is simply to give students a chance to learn and, where materials are appropriately selected, to succeed.

The second set of items supported by the group's judgment deals with an overlap between what is taught and what is tested. Curriculum mapping and test analysis can both contribute to this alignment. The effect can be increased where teachers pay attention to what has been taught and learned in the child's previous grade ("prior learning" which is in fact a variable).

The panel did not believe that effective teachers would let their teaching be shaped by what they like or dislike. While it is probably true that the most professional teachers are that disciplined, it is also probable that other teachers will need to have strong reasons to adopt unfamiliar techniques. Those reasons have both attitudinal and managerial dimensions.

Another set of items on which there is strong agreement dealt with teacher expectancies about student performance: They were to be high but attainable, modified periodically, and positively reinforced. Norm-referenced standards are supplemented by other criteria and the cyclical relation between learning and its recognition is frequently built in to programmed instruction, mastery learning, and computer assisted instruction.

Several items dealt with the teacher as the "manager" of the classroom and stressed the importance of teachers holding students accountable for assignments, handling problems simultaneously, keeping the pace brisk, and monitoring student seatwork. One way to summarize this is to say that when teachers teach, children learn, and, up to limits which are not now often reached the more teachers teach, the more children learn.

Administrators

We have already remarked on the panel's departure from the conventional wisdom in placing administrators second on the list of rank-ordered contributors to the IES. However, they were first on the list of useful policy targets probably because of a belief that the IES has to start somewhere and be maintained somehow. Administration has always been action at a distance; it has its effect on services through regulations, memos, operating routines, and personnel actions, not directly through teaching children. But is is clear that the panel wants to cut that distance and get principals much closer to children and much deeper into classrooms.

There is a strong feeling that the principal has become too much the business manager and too little the instructional leader. Most members were willing to see the management function done less well, all wanted administrators to do more curriculum development and evaluation, more teacher supervision, more staff development and in general to be far more involved with the school's teaching and learning mission than is now the case. While that is undoubtedly desirable, we think that there are three very real barriers to acting on that advice. First, a generation of principals has come into office with a diminished grasp of instruction. To succeed, one must be a credible, that is a knowledgeable instructional leader. In the IES, administrators do more than preside over the aggregate of what teachers are willing to do. Such schools have a very discrete, concentrated agenda and they have a clearly defined curriculum as has been documented in this analysis. If they are to facilitate and guarantee its implementation (two very different but often complementary functions), principals must first master the content of that curriculum. There are training implications here that should involve districts, institutions of higher education, and professional associations.

Second, teacher unions have "power-equalized" at the building level and principals will have to struggle to assert or reassert an instructional role. Third, one of the chief tools in that struggle is exactly what the panel would have principals de-emphasize---budget control, personnel management, resource allocation, and the administrivia that nonetheless steers organizations. We are encouraged that some principals are leading IES's and in the "real world" of the public school.

Principals of IES's did not have a set of descriptive characteristics that are unobtainable. They were thought to be optimistic people who solved problems and communicated clearly. They were thought to be good at structuring teacher rewards (even in the face of union contracts that have unnecessarily paralyzed some) and they did much more than monitor classroom instruction. The panel was not impressed with the principal as a community relations expert or as a grant getter: neither was a necessary component of the principal's role.

What was necessary was that the principal set high standards, a practice that would depart from the current, probably modal practice in which the principal "protects the teachers" from "unreasonable demands." Knowing what is "reasonable" depends on what is possible. Thus, if the faculty is to believe in the possibility of its work, the school's leaders must first understand the issues and their potential. Schools have been rightly criticized for being adult centered, not child centered. Demanding principals will need political support and courage. The panel helpfully pointed out that a school focussed on basic skills acquisition would have a more reasonable set of goals than the current goal overload and goal

overreach.

Student Body Composition Variables

Student body composition variables caused the most conceptual trouble for the panel but unless that difficulty is overcome, people interested in the IES may miss a source of improvement. The problem lay in having to consider the class status of some children first as a given that defined the IES, but second as a variable, parts of which might be manipulated to children's benefit. The IES may be defined as a school that works for poor children but that does not mean that children from other social classes might not also attend such schools. The IES definition treats family background as a constant, but that same factor is a variable for some policy purposes. This part of the Delphi looked for contextual effects, "To what extent does student body composition...effect an individual student's achievement, ceteris paribus?"

The overall conclusion of this part of the study is melancholy. Those factors most important to achievement are hardest to change; those that are easiest to change are least important. For example, the panel concurred that there are strong effects on achievement for a given child according to the social class of that student's classmates. But school attendance lines cannot be changed by principals. Superintendents, school board members, state officials, (and judges) can alter those lines and for them the social class composition of a school's student body is a policy variable. This finding is one of the few exceptions to the school building focus of the group's policy implications. Here the challenge is above the service delivery level. Interestingly, the same questions about belief and politics will apply for all actors.

The panel believes that big elementary schools diminish achievement (a little), that all girl schools help girls and women develop more of their potential, and (strongly) that homogeneous ability grouping diminishes overall achievement. Of the three, only the latter is clearly within reach of a school principal.

Some parent and family related factors can become school variables. The panel thought there were slight achievement effects from mothers in full-time paid employment and from large families with closely spaced children (probably because of a diminution of parenting "contact time"). Kindergarten is common, some schools have early childhood programs, a few schools have parenting education activities that might contribute to school achievement. Strictly speaking, the scarcity of those latter practices suggests that they are not within-school effects and thus should be excluded from our analysis. Whether that is accepted or not, the examples may make the point that some student body composition variables can be changed to good effect.

The college-going expectations of the parents and children, to take a final example, is thought to be related to achievement and can be shaped, in part, by school process.

In general though, the contextual effects of student body composition are not a major part of the IES. It gets done, if at all, in exactly the fashion that should be characteristic of a public school---with whoever comes to the door.

School Learning Climate

The productivity of any workplace will be heavily affected by the climate of that place, the way the workers feel about each other, their bosses, and the work itself. The first item on the school climate instrument asserted that in an IES, "The staff (believes) in the educability of all the students served by the school." The panel's unanimous support for the proposition would not be echoed in many schools attended by poor children. There, teachers find themselves expected to be instructors, disciplinarians, clerks, counselors, and supervisors to large groups of children: despite their efforts, many of those teachers believe that they are unfairly criticized and poorly paid. Confronted with a situation they believe to be over demanding and under rewarding, many have retreated into a custodial definition of their work and explained that, at least to themselves, by referring to the research that purports to show how little schools can contribute in the absence of nurturing, intact, educating homes. Thus, what teachers believe about the educability of poor children critically determines how hard they, the teachers will try and through that, how much the children will learn.

Note Bene: How hard it is reasonable for teachers to try is directly related to how effective schooling is at its most powerful. This Delphi study tested that power and while we urge teachers to believe in the educability of all children we have been less successful in amassing compelling empirical evidence of why they should believe that. The conclusion here is not to give up but rather to try harder. The evidence does support substantial increases in the efforts invested by school people. The second conclusion is that teachers and administrators are right to want to know on what basis they are being asked or required to change their practices. We know some good things that work, those should be implemented now, but we also need more research.

Teachers' beliefs that all children can learn is the first half of the educability question. The second half is the teachers' belief that they, both individually and as a faculty, can teach all children. Again, the panel believes that that sort of organizational sense of efficacy is importantly related to increased achievement for poor children. It should be noted that a prior question has to do with the physical safety of the

building which must be secured before either the children or the teachers can attend to schooling. That this is less of a concern than in recent years is due in no small part to the research on school violence supported by the Federal government and its implementation in public schools.

If a school is to have an effect it has to be through more than the efforts of a single outstanding teacher. Children have several teachers over the grades and instruction is supported by the interaction of different roles. As one member put it, to be effective, a school has to be more than "independent classrooms held together by a common parking lot." The panel strongly endorses a shared understanding of the school's purpose and a common effort in that direction. The prevailing norm stresses the "professional autonomy" of individual teachers in individual classrooms. Sixty percent of the panel members supported the proposition that some of the autonomy should give way to a closer integration of the school's work among all teachers.

Climate measures ordinarily look at questions of work satisfaction. While the panel had rejected that as a primary outcome indicator of an IES, it nonetheless stressed "morale," "satisfaction," and "cohesiveness" as important facets of the IES. The group's easy agreement about those things masks real questions about schools where adult satisfaction is adequate and achievement is not, as well as schools where the children's achievement gains have come at the expense of organizational factors such as faculty cohesiveness and principal/staff harmony. Goals set and enforced above a school's current performance may risk the happy climate of a school, at least in the transition from less to more effectiveness.

Much of this is related to leadership in the instructionally effective school. The panel endorses collaborative planning and participatory decision making,* both of which are likely to facilitate the implementation of the substance of the IES. The panel also recommends that administrators sacrifice some of their business management activities in favor of instructional leadership although one wonders what would happen to school climate if the principal neglected to forward payroll vouchers on time.

The IES is an organizational phenomenon as well as an individual one. The school-based culture of teaching must be engaged in this work as well as each teacher's individual estimate of the possibilities of the profession.

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*In the administration data collection, members made the point that leadership might come from the teacher ranks in addition to, sometimes instead of, the administrators.

Pupil Evaluation

The testing practices of American education are not adequate to support an instructionally effective school. The two major dimensions of testing in an IES are instructional tests, often teacher-made, and standardized achievement tests. The Delphi analysis emphasized the importance and contribution of both.

Norm-referenced, nationally distributed, standardized achievement tests, are often criticized but the panel was forthright in recommending them as a metric of achievement within the IES. Assuming that they are reasonably aligned with the curriculum as taught, and assuming that their results are used appropriately, they provide an element of accountability that is more closely related to what children need than are other, more diffuse or adult-centered measures such as satisfaction with the school. If the test performance of children could not be improved by the work of school people, then it would be unfair to evaluate schools with such standards. The uses of test data for policy decisions are discussed in the policy section below. At this point, we should note that the panel supports the formulation of tests by experts and the use of those test data by lay people including school boards and the general community. Moreover, a majority of the panel supports reporting of test data broken down by students' social class. The position is a sensible one. First, the instructionally effective school assumes that effect will be measured and, as long as the IES is defined with respect to social class, those data are relevant. Second, reducing the unfortunate interaction between low social class standing and low school achievement is good public policy. Reporting the data by social class allows us to set and modify our goals. There is a consistent strain in the panel's deliberations to open up "instructionally effective" schools to all children. That recurred here as well where the scores of all children were to be reported but presumably the ones used to judge the IES would be those from poor families only.

One important question was not considered by the panel. Norm referenced standardized tests are designed to cut the test population at midpoint, half above and half below. New York City, Pittsburgh and Atlanta all enroll substantial numbers of minority students, all have been using the same test, and all have had more than half their tested students above the median point for a minimum of two consecutive years. There are three possible conclusions from that. First, some have concluded that some systems are cheating and therefore the results are invalid. Others have concluded that those systems are getting better and should be congratulated. The third possible conclusion is that the results are valid and the norm should be changed. Fragments of all three responses can be found in current policy discussions. Social scientists frequently comment on the social stratification function performed by schools. If the norms are

raised, the political consequences for the important school improvement efforts now underway across the country will be severe.

The group's analysis also emphasized the use of tests in conjunction with classroom instruction. In general, the recommended practice is diagnostic-prescriptive and geared to particular units within the curriculum. Commercial publishers are good sources of tests premised on their curriculum. This business of testing what is taught can be pilloried as teaching to the test but whether that is bad or not depends on what is being measured and for what purposes. If we want to find out what children have learned in relation to what they have been taught then there must be an "overlap" or "alignment" between the content of instruction and of tests.

Some members of the panel were concerned not to overwhelm the teacher with testing obligations; time spent testing is not available for direct instruction. Others were concerned about the cost of testing. Even taking those caveats into account, the frequency and use of instructional testing would be much greater than the current practice of testing at marking periods generally for purposes of placing the child in his or her next class. The emerging maxim is that IES's use the data they collect and thus the consequences of testing impact both what the child and the teacher does next. In that regard, the computer systems necessary to support much more finely grained pupil achievement evaluation systems already exist and are frequently underutilized. The cost to student engaged time is a more realistic barrier to more testing than is the cost of collecting, analyzing, and reporting the data.

Two final points. The panel split on whether or not testing at the level of minimum competency diminished a child's aspirations. The question seems to us to be more relevant to adults speculating about children than to children faced with a series of transitional, ever increasing achievement thresholds. As with the other factors, the panel endorses goal setting close to the child and the local school.

Curriculum Materials

The idea of "curriculum" ordinarily includes both product and process, the texts and how they are used. In order to parcel out the analysis, one team had to concentrate narrowly on the artifacts that mediate, inform, guide, and perhaps determine classroom instruction because those materials are related to general expectations about how much of what should be taught, in what sequences, at what grade levels. Measuring the power or efficacy of existing materials for children from poor families is also important because so much money is invested in their development and purchase. In New York City, for example, half of the State's yearly per pupil textbook allowance in the early

grades is spent on consumable basic literacy materials.

Of the factors contributing to the IES, the panel consistently ranked curriculum materials last. Part of that is attributable to the narrowness of the definition, most is due to the weight given other factors, especially teachers. If one of the major properties of an IES is a diagnostic-prescriptive cycle roughly akin to Mastery Learning, then why would not curriculum support of the 'teacher as evaluator and diagnostician' be fairly central to the IES? The panel consistently stressed relationships and teacher behaviors and just as consistently rejected mechanistic, rational, sequential conceptions of the IES. This will disappoint practitioners who rightly search for recipes but the good news is that, since the contribution of curriculum materials is relatively slight, a majority of the panelists believed that the IES could be achieved whether or not an individual school possessed optimal texts and materials. Similarly, the panel was unimpressed with the effect of alternate curricula on grouping for instruction. Even though the basic skills acquisition research supports direct (reading) instruction to large groups, the panel was indifferent to this part of the question.

The folklore about classroom teaching is split on the extent to which texts control teaching. Text adoptions are thought to have grave consequences because so many teachers plan their lessons from the texts. On the other hand, it is generally believed to be impossible to "teacher proof" any curriculum, that is, to determine the behavior of teachers by having provided text materials and other support. The panel too, was divided. Although materials were not highly ranked, the best of existing curricula nonetheless do support good instruction and do provide some rough outer boundaries for practice. The contribution of materials to an IES comes not from by-passing the teacher directly to the student, but from having affected how teachers teach. The revolution in electronic learning is likely to short circuit that route, a proposition that is tested daily in the video arcades of America. But in the absence of public policies to the contrary, the effect of the electronic revolution will vary by social class. Half the households in the U.S., the top half, will have home computers by 1990.

The panel had been asked to respond to the assertion:

> Text and other materials or products necessary to support the creation and maintenance of an instructionally effective school exist.... There is a basic skills curriculum well enough developed to facilitate the acquisition of word recognition skills, basic spelling, number facts, etc.

The panel's agreement was confident and referenced "Distar," "Open Court," and "Breakthrough to Literacy." Again, the prior focus on literacy was not seen as precluding a later emphasis on

comprehension, writing, or other abilities.

Our own perspective supports the emphasis on the IES as a "people place" but puts more weight on the near term prospective breakthroughs in curriculum. All innovations are partly technical and partly procedural. The recent history of school reform shows more improvement in the process of gaining entry to the school and working with teachers than it does improvement in the content, substance, or product of those changes. As the mature products of curriculum development efforts more accurately reflect the results of basic research on teaching and learning that will change. The factors discussed elsewhere in this report---aligning texts and instruction, maximizing time-on-task and direct instruction, matching teaching styles with learning styles, using diagnostic-prescriptive sequences, etc.---will increasingly be reflected in curriculum materials and to good effect.

Policy

The biggest obstacle to more schools becoming more instructionally effective has to do with attitudes and beliefs about what is possible given the state of the art and science of teaching and learning for poor children. Because of that, the three most important policy implications from this research are as follows.

First, INSTRUCTIONALLY EFFECTIVE SCHOOLS EXIST and can be used as an orientation, a benchmark, a set of aspirations and a source of practical guidance. Pedagogy has changed and is becoming more powerful. Some schools are instructionally effective, more can be.

Second, there is a set of KNOWN FEATURES WHICH PROVIDE USEFUL, OPERATIONAL GUIDANCE to practitioners, policy makers and researchers. Practitioners and researchers use knowledge in different ways and demand different assurances. Because progress toward the IES rests so heavily on what practitioners believe is possible, the knowledge base of the IES---that is, doing more research--- is unusually important. But, while that is going on, we should all be clear that there are substantive reasons having to do with children's outcomes that make school improvement an urgent priority, now.

Third, INSTRUCTIONALLY EFFECTIVE SCHOOLS CAN BE REALIZED WITHIN EXISTING RESOURCES. While more money would be helpful, it is not necessary. While more autonomy and discretion especially for building principals would be helpful, it is not necessary. Improvements can and should begin now, with what we already have. And the outcomes from those improvements should then translate into more resources for needy schools.

The burden of the policy implications falls unanimously and emphatically on local education authorities and on the school building. Attitudes and beliefs are key to aspirations and school administrators are the paramount audience that needs to understand the IES. Although the panel would probably dissent from our interpretation, we believe that virtually all of the prescriptions in every one of the factor areas (e.g., teaching, pupil achievement evaluation, etc.) require the leadership and involvement of the school principal. Every point in our analysis has implications for the principal.

Our own summary of the major findings, by policy area, follows.

Administrators

(1) Administrators need to re-emphasize instructional leadership probably at the expense of some business management.

(2) They need to set high, child-centered achievement goals and in some locales that will risk the harmony of the school's adult culture.* They will need courage and political support in that.

(3) For instructional leadership to be successful it must be credible and that will require training for practitioners.

Teachers

(4) The knowledge base is best developed here. Teachers should be encouraged by the convergence of research on a limited set of process and product factors linked to the efficacy of their work with children.

(5) That convergence has implications for the traditional autonomy now accorded virtually every teacher in every classroom. In the future, professional practice will have to be selected from a smaller set.

(6) Teachers as faculties are the preferred locus of improvement efforts. While the IES has implications for each teacher as an individual, the IES is an effective organization dealing with children over the course of their school experience.

Organizational Climate

(7) The organizational characteristics of the IES are its task orientation (concentrated nearly exclusively on basic skills acquisition until that is securely in place) and its high expectations of staff and students.

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*Clark and Lotto dissent from this and argue the importance of staff satisfaction as a precursor to student achievement.

Student Body Composition

(8) While the IES by definition enrolls children from poor families, school boards should draw school attendance lines to maximize the contribution which heterogeneous student body populations make to achievement.

Pupil Achievement Testing

(9) Standardized tests are the best overall measure of the IES. They need to be reported by social class, shared widely, and used to guide policy.

(10) Testing linked to instructional units needs to be increased in order to maximize the overlap or alignment between what is taught and what is tested.

(11) Test data used to manage instruction compared to test data used to manage instructors (e.g., ranking less and more effective teachers) are two separate questions. The former makes more difference for realizing the IES than the latter.

Curriculum

(12) Good materials exist although they are not widely recognized. More are being developed but the central finding is that schools and teachers can become instructionally effective with a wide variety of materials.

Finally, for every factor area, and for all policy and practical uses, there is a similar message. The state of the art and science of teaching and learning for poor children is getting better. Because substantial improvements are being increasingly documented, there is reason for educators to return to what brought many of them into the profession in the first place---a desire to help the most needy children.

For further information including the team reports and propositional inventories for each of the IES domains, write:

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